



**QUALITY ASSOCIATES INTERNATIONAL<sup>®</sup>, LTD**

**Q**UALITY **A**SSURANCE IS THE BEST **I**NSURANCE

## **INTERNAL STATISTICAL PROCESS CONTROL EVALUATION CHARTS<sup>™</sup> (INSPEC<sup>™</sup>)**

Most testing laboratories attempt to control their measurement processes so that results are maintained within some specified limit when compared with a true or known value. The activity of maintaining a measurement process within specified limits is known as quality control. The specifications with which the measurement process is compared are usually known as the control limits.

In the ideal case, a testing laboratory is able to control the dispersion of their test results within the specified control limits. Inevitably, however, a result outside the control limits will occur. An excursion outside of the control limits requires immediate corrective action. At that time, it becomes critical to be able to select what action should be taken. A basic principle of quality control is to monitor a measurement process in such a fashion that the factors affecting the dispersion of results produced in a testing laboratory can be identified and, if possible, controlled. The activity of identifying and controlling the dispersion of test results in a laboratory can be referred to as estimation of uncertainty of measurement.

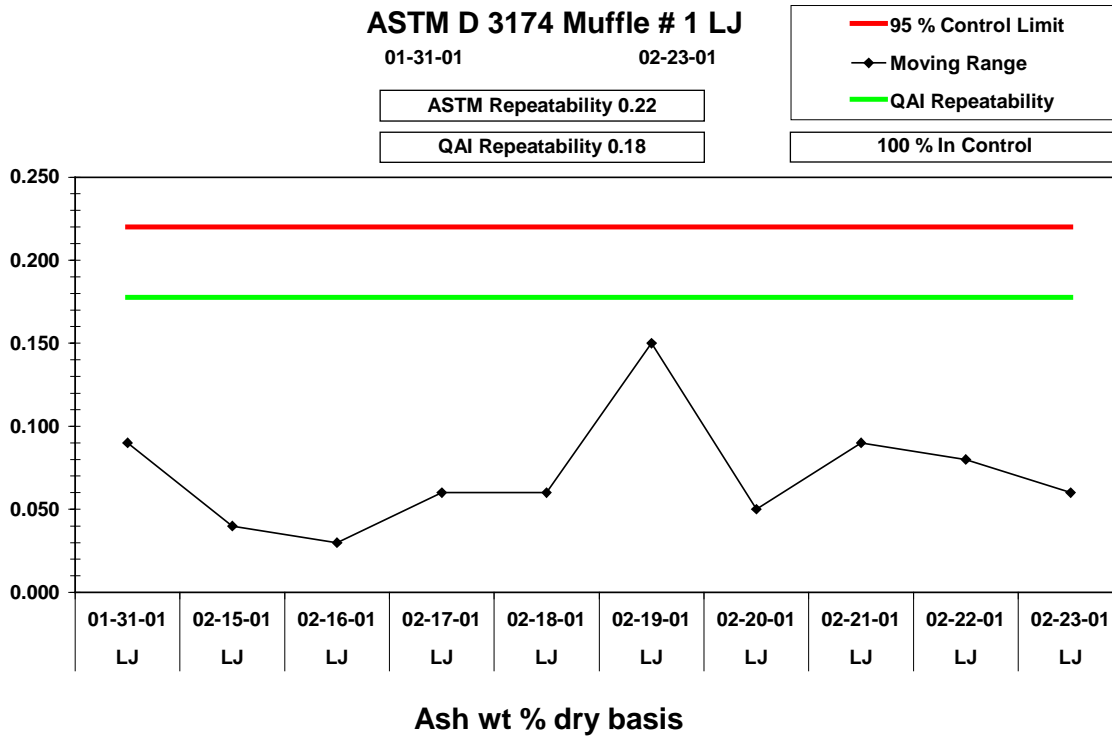
ISO 17025, *General requirements for the competence of testing and calibration laboratories*, specifies criteria which testing laboratories must meet with respect to estimation of uncertainty of measurement. QAI, LTD has developed a series of Microsoft<sup>®</sup> Excel based control charts and modules that allow testing laboratories to meet the requirements specified in ISO 17025 with respect to uncertainty of measurement. These control charts and modules employ the principles, practices and procedures specified in ISO 5725, cited in ISO 17025, as a key reference for estimating measurement uncertainty.

The control charts and modules are designed to cover three important categories of testing conducted in most coal and coke laboratories:

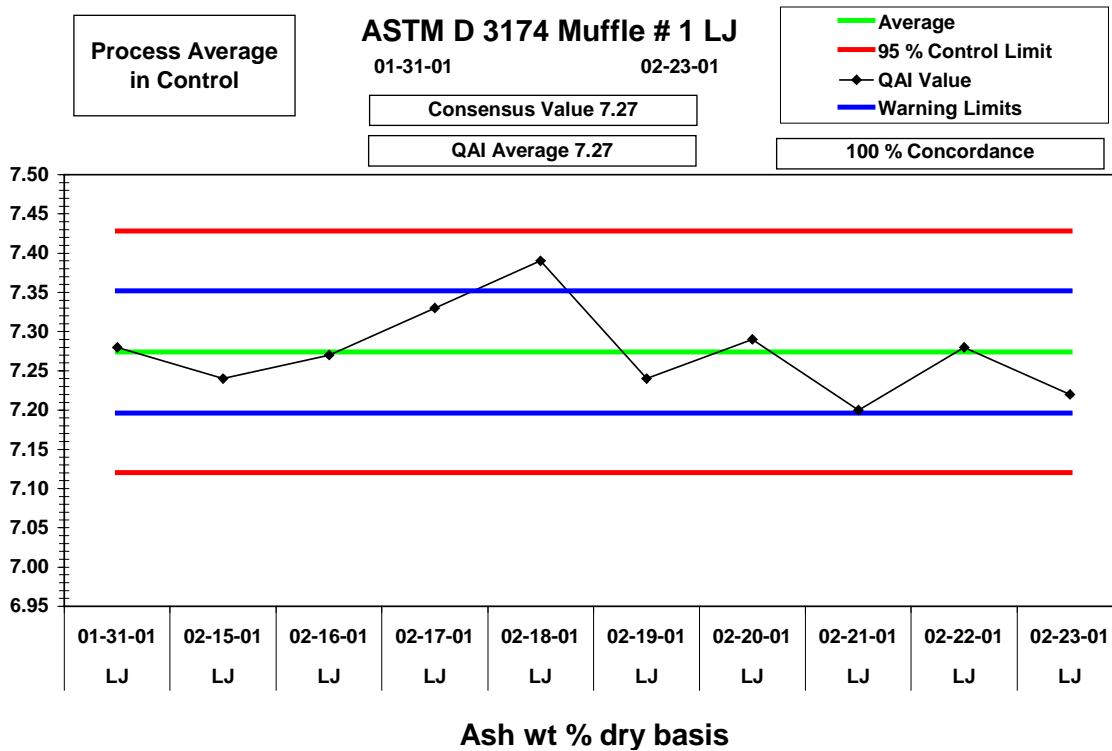
- Standard tests conducted on a daily basis for which stable control materials of known composition are readily available.
- Standard tests conducted on a batch basis for which stable control materials of known composition are readily available.
- Standard tests for which no known stable control materials are readily available.

The following charts are examples of QAI charts for ASTM D 3174 conducted on a daily basis for which a stable control material of known composition is available.

**EXAMPLE OF RANGE CONTROL CHART**



**EXAMPLE OF MEAN CONTROL CHART**



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